

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Applicants: **DE VROOME**

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Examiner: CULLER, Jill E.

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Title: **PRINTING MATERIAL WEB PROCESSING MACHINE**

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Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

APPELLANT'S REPLY BRIEF UNDER 37 C.F.R. §41.41

Sir:

Appellants submit this Reply Brief for consideration of the Board of Patent Appeals and Interferences (the "Board") in response to the Examiner's Answer dated April 28, 2011 and in support of their appeal of the Final Office Action issued on June 8, 2010. Appellants respectfully reassert each of the arguments asserted in Appellants' Brief dated January 31, 2011 and provides herein only additional comments in response to the arguments raised in the Examiner's Answer.

No fee is believed required. If any fee is required at this time, the Commissioner is authorized to charge payment of the same to Deposit Account No. 50-0552.

ARGUMENTS

A. Rejections under 35 U.S.C. §103(a): Niemiec in view of Kurie, West and Shima

Claims 1, 2, 5, 7, 8, 10 to 15 and 23 to 26 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Niemiec in view of Kurie, West and Shima.

1. Independent Claim 1

As discussed in Appellant's Brief, the Examiner continues to fail to consider the limitations of claim 1 as a whole and is merely selectively combining the cited references based on improper hindsight bias solely based on a desire to meet the limitations of claim 1. This is evidenced by the Examiner's failure to consider the specific teachings of the cited references and the Examiner's conclusory reasoning for combining the references. In particular, the Examiner continues to misinterpret or mischaracterize Shima to meet the elements of claim 1 that are not disclosed in the other cited references.

First, the Examiner incorrectly continues to allege that Shima teaches controlling a web at two different tensile stresses in a printing unit and a drying unit. However, as is clear from the description of Shima from column 16, line 60 to column 19, line 15 and the corresponding flow charts in Figs. 14 to 16, no portion of any of the sheets of recording medium 1 in Shima is ever transported by first transport mechanism 6A of printing unit PU and second transport mechanism 6B of heating unit HU, which the Examiner incorrectly alleges is a dryer, at the same time.

Shima specifically states that the leading end of each recording medium 1 is not passed into heating unit HU until after the trailing end of the recording medium 1 passes through pinching transport roller set in intermediate transport mechanism 30. (See col. 18, lines 36 to 45). This clearly and unambiguously demonstrates that Shima does not teach controlling a web at two different tensile stresses in a printing unit and a drying unit. Accordingly, contrary to the assertions of the Examiner, one of skill in the art would not have modified Niemiec in view of Shima to include "a controller coupled to said at least one press cylinder and to said second apparatus, said controller setting said first tensile stress and said second tensile stress such that said second tensile stress is less than said first tensile stress" as recited in claim 1.

Second, although the Examiner is correct that there is some correlation between the speed

of recording medium 1 in Shima and the amount of tensile stress of recording medium 1, the Examiner's approach oversimplifies the control the tensile stress of recording medium 1 because it does not take into account that tensile stress depends on the speed of each roller and/or element acting on recording medium 1. The tensile stress that recording medium 1 is conveyed while being printed by print head 2 of Shima depends at least on the velocity of the rollers of first transport mechanism 6A that are upstream and downstream of print head 2. Similarly, the tensile stress that recording medium 1 is conveyed while being heated by heating unit HU of Shima depends at least on the velocity of the rollers of first transport mechanism and the rollers of loop unit LU upstream of heating unit HU, which are continuously accelerating and decelerating sheets of recording medium 1. Shima does not in any way suggest any advantages of conveying recording medium 1 in heating unit HU under a tensile stress that is less than a tensile stress that recording medium 1 is conveyed while being printed by print head 2 or even go into sufficient detail to inherently provide such a teaching. In fact, the tensile stress is clearly not discussed as a factor of the effectiveness of the heat fixing in heating unit HU, only slowing down the heat fixing operation is mentioned as being beneficial. In any event, as discussed above, because no web is conveyed in printing unit PU and heating unit HU at the same time, any tensile stress distribution in the image forming apparatus would not been seen by one of skill in the art as being applicable to the web printing press of Niemiec.

Third, it is respectfully submitted that the Shima does not in any way teach "quality is improved by moving a printed product through a dryer more slowly to a lower temperature" as alleged by the Examiner. (Examiner's Answer, page 14, lines 13 to 14). Printing unit PU in Shima applies sublimating ink to a recording medium 1 that includes a PET substrate 10 covered by fixing layer 11, which is covered by permeating surface layer 12. (Fig. 1; col. 6, lines 17 to 25). The ink is released onto permeating surface layer 12 by printing unit PU, sublimated into fixing layer 11 by the heat fixing process in heating unit HU and finally permeating surface layer 12 is removed to form a final printed product 100. (Fig. 1; col. 6, lines 25 to 49). Accordingly, heating unit HU of Shima is not a dryer for drying a paper web, but instead is a heat unit HU used to heat fix sublimating inks onto a plastic substrate. In fact, nowhere in Shima is drying in any way discussed. Based on this alone, one of skill in the art would not have any reason to have modified Niemiec in view of Shima. As discussed in the background of the present application,

Niemiec is directed towards removing fluting in a paper after fluting has occurred by using spreading rolls in a cooler downstream of a dryer. One seeking to improve the drying of the paper web in Niemiec or to prevent fluting of the paper web would certainly have not taken into consideration the heating sublimating process of Shima.

Fourth, it is absolutely clear that none of Niemiec, Kurie, West or Shima, alone or in combination, discloses "a pull roll disposed downstream of said dryer for conveying the paper web along said meander-like path under a second tensile stress" as recited in claim 1. This is illustrated by the Examiner's complete failure to identify anywhere in any of the cited reference where such a pull roll is taught. (See Examiner's Answer, page 17, lines 6 to 18). As discussed in Appellant's Brief, in Niemiec, "[t]he tension force on the web that pulls the web from the press to the sheeter/folder/rewinder station is applied solely and entirely from the station alternatively, from some other location downstream from the chill roll station 20." (Niemiec, col. 6, lines 18 to 22). Thus, the first chill roll 20 is not a "pull roll" for "conveying the paper web ... under a second tensile stress" as recited in claim 1. The Examiner apparently acknowledges this deficiency and then somehow attempts to allege that the "pull roll" of claim 1 is inherently taught in Kurie and that Shima teaches the "pull roll" of claim 1 by not precluding such a pull roll. However, it is clear that such allegations are not supported by a showing of factual findings or reasoning to establish inherent disclosure or obviousness. (See *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original): "In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art."). (See also Examination Guidelines Update: Development in the Obviousness Inquiry After *KSR v. Teleflex*: "It remains Office policy that appropriate factual findings are required in order to apply the enumerated rationales properly. If a rejection has been made that omits one of the required factual findings, and in response to the rejection a practitioner or inventor points out the omission, Office personnel must either withdraw the rejection, or repeat the rejection including all required factual findings.")

Based on the foregoing and the arguments in Appellant's Brief, it is clear that the Examiner has not established a *prima facie* case of obviousness with respect to claim 1, and thus

reversal of the rejections to claim 1 and its dependent claims is respectfully requested.

2. Independent claim 7: Argued Separately

Independent claim 7 includes most of the same limitations of claim 1 and accordingly, the above arguments with respect to claim 1 also apply to claim 7.

Additionally, it is also respectfully submitted that one of skill in the art would not have had any reason to modify Niemiec in view of Shima to include pinching transport roller set 31 of Shima upstream of floater type oven 18 of Niemiec and thus the cited references do not make obvious “*a second pull roll*, which is disposed downstream of said press cylinder and upstream of said dryer, for releasing the paper web during a normal printing operation and for controllably setting a third tensile stress on the paper web between the at least one press cylinder and said second pull roll” as recited in claim 7. Pinching transport roller set 31 of Shima is used to control each recording medium 1 so no recording medium 1 is not present in both printing unit PU and heating unit HU at the same time. One of skill in the art would not have included such a roller set 31 in Niemiec because Niemiec involves transporting a continuous web, which is acted upon by printing units 16 and floater oven 18 at the same time. Such a modification would clearly be unreasonable and contrary to the operational concepts of Niemiec.

Based on the foregoing and the arguments in Appellant’s Brief, it is clear that the Examiner has not established a prima facie case of obviousness with respect to claim 7, and thus reversal of the rejections to claim 7 and its dependent claims is respectfully requested.

3. Independent claim 14: Argued Separately

Shima does not teach “conveying the paper web along a drying path under a second controllable tensile stress of the paper web which is controllably set to be equal to or less than 10% of the first controllable tensile stress, the drying path being established by a plurality of nozzle bars disposed on both sides of the web guiding the web along a meander-like path, the nozzle bars being spaced apart and offset from one another” as recited in claim 14 or provide any reason to modify Niemiec in such a manner because, as discussed above, Shima does not teach controlling a web at two different to a press cylinder and along a drying path. Instead, Shima teaches storing a sheet of recording medium 1 in a loop unit LU until the trailing edge of the

sheet exits printing unit PU and then passing the sheet into heating unit HU. Shima also does not in any way suggest any advantages of conveying recording medium 1 in heating unit HU under a tensile stress that is less than a tensile stress that recording medium 1 is conveyed while being printed by print head, but merely discloses that slowing down the heat fixing operation is beneficial. Additionally, Shima also does not relate to drying a paper web, but sublimating ink into a fixing layer 11 on a PET substrate 10 covered by fixing layer 11. One seeking to improve the drying of the paper web in Niemiec or to prevent fluting of the paper web would certainly have not taken into consideration the heating sublimating process of Shima.

Based on the foregoing and the arguments in Appellant's Brief, it is clear that the Examiner has not established a prima facie case of obviousness with respect to claim 14, and thus reversal of the rejections to claim 14 and its dependent claims is respectfully requested.

4. Independent claim 23: Argued Separately

Independent claim 23 includes many limitations that are similar to those limitations discussed above with respect to claim 1 and accordingly, many of the above arguments with respect to claim 1 also apply to claim 23.

Additionally, contrary to the Examiner's assertions, Shima does not disclose "a second pull roll disposed downstream of said press cylinder and upstream of said dryer for releasing the paper web during a normal printing operation and for controllably setting a third tensile stress on the paper web between the at least one press cylinder and said second pull roll" or "a controller coupled to said apparatus and to said second pull roll for controlling said second tensile stress and said third tensile stress such that said second tensile stress is less than said third tensile stress" as recited in claim 23. Pinching transport roller set 31 of Shima is controlled so that no recording medium 1 is present in both printing unit PU and heating unit HU at the same time. One of skill in the art would not have included such a roller set 31 in Niemiec because Niemiec involves transporting a continuous web, which is acted upon by printing units 16 and floater oven 18 at the same time. Such a modification would clearly be unreasonable and contrary to the operational concepts of Niemiec. Furthermore, in loop unit LU of Shima, slackness is introduced into recording medium 1 and clearly the tensile stress of any recording medium 1 between print unit PU and pinching transport roller set 31 is less than the tensile stress of any recording medium


along the inside of heating unit IIU.

Based on the foregoing and the arguments in Appellant's Brief, it is clear that the Examiner has not established a *prima facie* case of obviousness with respect to claim 23, and thus reversal of the rejections to claim 23 and its dependent claims is respectfully requested.

CONCLUSION

It is respectfully submitted that the application is in condition for allowance. Favorable consideration of this Reply Brief is respectfully requested.

Respectfully submitted,
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